

Application Serial No.: 09/855,754  
Attorney Docket No.: 03495-0206-00000

and the toxin is selected from at least one of PTX, DNT, TCT, and Ac-Hly.

111. (NEW) An immunogenic composition as claimed in claim 99, wherein the composition further comprises at least one of an adhesin of *Bordetella* and a toxin of *Bordetella*; where in the adhesin is selected from at least one of FHA, AGG2, AGG3 and the toxin is selected from at least one of PTX, DNT, TCT, and Ac-Hly.

112. (NEW) An immunogenic composition as claimed in claim 101, wherein the composition further comprises at least one of an adhesin of *Bordetella* and a toxin of *Bordetella*; where in the adhesin is selected from at least one of FHA, AGG2, AGG3 and the toxin is selected from at least one of PTX, DNT, TCT, and Ac-Hly.

113. (NEW) An immunogenic composition as claimed in claim 105, wherein the composition further comprises at least one of an adhesin of *Bordetella* and a toxin of *Bordetella*; where in the adhesin is selected from at least one of FHA, AGG2, AGG3 and the toxin is selected from at least one of PTX, DNT, TCT, and Ac-Hly.

114. (NEW) An immunogenic composition as claimed in claim 106, wherein the composition further comprises at least one of an adhesin of *Bordetella* and a toxin of *Bordetella*; where in the adhesin is selected from at least one of FHA, AGG2, AGG3 and the toxin is selected from at least one of PTX, DNT, TCT, and Ac-Hly.

#### REMARKS

Entry of this Amendment is respectfully requested. The amendments adding the sequence identifier, SEQ ID NO: 25, to the specification and claims are in response to the requirement by the Office. (See Paper No. 10, page 6, lines 7-9.) In accordance with this requirement, the substitute Sequence Listing includes a new listing for SEQ ID

FINNEGAN  
HENDERSON  
FARABOW  
GARRETT &  
DUNNER LLP

1300 I Street, NW  
Washington, DC 20005  
202.408.4000  
Fax 202.408.4400  
[www.finnegan.com](http://www.finnegan.com)

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NO: 25. The additions of this sequence identifier to the specification and of the sequence to the Sequence Listing do not add new matter.

New claims 98-114 are derived from the pending claims and reflect the election in response to the Restriction Requirement. These new claims do not add new matter.

In view of the foregoing amendments and remarks, Applicants respectfully request the reconsideration and reexamination of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,  
GARRETT & DUNNER, L.L.P.

Dated: May 24, 2002

By:

  
Kenneth J. Meyers  
Reg. No. 25,146  
Phone: (202) 408-4000  
Fax: (202) 408-4400  
Email: Ken.Meyers@finnegan.com

FINNEGAN  
HENDERSON  
FARABOW  
GARRETT &  
DUNNER LLP

1300 I Street, NW  
Washington, DC 20005  
202.408.4000  
Fax 202.408.4400  
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Appendix t the Amendm nt f May 24, 2002

Please amend the application as indicated.

IN THE SPECIFICATION

Page 13, fourth full paragraph, lines 18-24:

In particular, this invention is the result of the discovery that there are different species of the full length pertactin of *Bordetella bronchiseptica*, namely, species containing 6, 7, 8, or 9 repeating PQP amino acids sequences in Region II thereof, and species of full length pertactin of *B. bronchiseptica* containing 1, 2, or 3 repeating GGXXP amino acid sequences (SEQ ID NO: 25) in Region I thereof, where XX can be FD, FG, or AV. These full length pertactins and mixtures of these pertactins in any combination of the repeating sequences are thus provided by this invention.

Page 16, third full paragraph, lines 16-20:

It will be immediately apparent that this invention provides polypeptide fragments of the pertactin of *B. bronchiseptica*, where the fragments comprise 6, 7, 8, or 9 repeating PQP amino acid sequences in Region II thereof or 1, 2, or 3 repeating GGXXP amino acid sequences (SEQ ID NO: 25) in Region I thereof. Mixtures of these polypeptide fragments in any combination of the repeating sequences are also within the scope of this invention.

Page 17, second full paragraph, lines 14-22:

In another embodiment, this invention provides a composition comprising a mixture of *Bordetella bronchiseptica* pertactin variants, wherein each *Bordetella bronchiseptica* pertactin variant comprises Region I of a pertactin of *Bordetella*

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HENDERSON  
FARABOW  
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DUNNER LLP

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*bronchiseptica*, and further wherein each *Bordetella bronchiseptica* pertactin variant comprises 1, 2, or 3 repeating GGXXP amino acid sequences (SEQ ID NO: 25) in Region I thereof, and the at least two of the *Bordetella bronchiseptica* pertactin variants differ in the number of the repeating GGXXP amino acid sequences contained therein. This composition can also comprise pertactins of *Bordetella parapertussis*, *Bordetella pertussis*, or mixtures thereof. The *Bordetella bronchiseptica* pertactin variants can be full length or a fragment.

Page 18, first full paragraph, lines 1-9:

In a further embodiment, the invention provides a composition comprising a mixture of *Bordetella bronchiseptica* pertactin variants, wherein one of the *Bordetella bronchiseptica* pertactin variants comprises Region II of pertactin of *Bordetella bronchiseptica* having 6, 7, 8, or 9 repeating PQP amino acid sequences in Region II thereof, and another of the *Bordetella bronchiseptica* pertactin variants comprises Region I of pertactin of *Bordetella bronchiseptica* having 1, 2, or 3 repeating GGXXP amino acid sequences (SEQ ID NO: 25) in Region I thereof. This composition can also comprise pertactins of *Bordetella parapertussis*, *Bordetella pertussis*, or mixtures thereof. The *Bordetella bronchiseptica* pertactin variants can be full length or a fragment.

#### IN THE CLAIMS

59. (AMENDED) The immunogenic composition of claim 56, wherein the pertactins of *Bordetella* species, fragments and variants thereof, comprise at least one of:

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(A) 1, 2, or 3 repeating GGXXP amino acid sequences (SEQ ID NO: 25) of Region I; and

(B) 6, 7, 8, or 9 repeating PQP amino acid sequences of Region II.

60. (AMENDED) The immunogenic composition of claim 56, further comprising at least one of:

(A) 1, 2, or 3 repeating GGXXP amino acid sequences (SEQ ID NO: 25) of Region I; and

(B) 6, 7, 8, or 9 repeating PQP amino acid sequences of Region II

of the pertactins of at least one of:

(C) *Bordetella bronchiseptica*;

(D) *Bordetella parapertussis*; and

(E) *Bordetella pertussis*.

61. (AMENDED) The immunogenic composition of claim 58, further comprising at least one of:

(A) 1, 2, or 3 repeating GGXXP amino acid sequences (SEQ ID NO: 25) of Region I; and

(B) 6, 7, 8, or 9 repeating PQP amino acid sequences of Region II

of the pertactins of at least one of:

(C) *Bordetella bronchiseptica*;

(D) *Bordetella parapertussis*; and

(E) *Bordetella pertussis*.

FINNEGAN  
HENDERSON  
FARABOW  
GARRETT &  
DUNNER LLP

1300 T Street, NW  
Washington, DC 20005  
202.408.4000  
Fax 202.408.4400  
[www.finnegan.com](http://www.finnegan.com)

PATENT

Customer Number 22,852  
Attorney Docket No. 03495-0206-00000

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: )  
Boursaux-Eude and Guiso-Maclouf ) Group Art Unit: 1645  
Serial No.: 09/855,754 ) Examiner: Navarro, A. M.  
Filed: May 16, 2001 )  
For: POLYPEPTIDES CONTAINING )  
POLYMORPHISMS OF THE )  
REPEATED REGIONS OF )  
PERTACTIN IN *BORDETELLA* )  
*PERTUSSIS, BORDETELLA* )  
*PARAPERTUSSIS, AND* )  
*BORDETELLA* )  
*BRONCH/SEPTICA, THEIR* )  
USE IN DIAGNOSTICS, AND )  
IN IMMUNOGENIC )  
COMPOSITIONS )

Commissioner for Patents and Trademarks  
Washington, DC 20231  
Box SEQUENCE

Sir:

**STATEMENT TO SUPPORT FILING AND SUBMISSION IN ACCORDANCE WITH**  
**37 C.F.R. § 1.821-1.825**

In connection with the substitute Sequence Listing submitted concurrently herewith, the undersigned hereby states that:

1. a paper copy of the substitute Sequence Listing is submitted herewith under 37 C.F.R. § 1.825(a);
2. a computer readable form of the substitute Sequence Listing is submitted herewith under 37 C.F.R. § 1.825(b);

FINNEGAN  
HENDERSON  
FARABOW  
GARRETT &  
DUNNER LLP

1300 I Street, NW  
Washington, DC 20005  
202.408.4400  
Fax 202.408.4400  
[www.finnegan.com](http://www.finnegan.com)

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3. the substitute paper copy and computer readable form of the Sequence

Listing submitted herewith do not add new matter to the application;

4. the content of the substitute computer readable form of the Sequence

Listing contains the identical information as the substitute paper copy, both submitted herewith;

5. all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true; and further; that these statements were made with the knowledge that willful false statements and th like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent resulting therefrom.

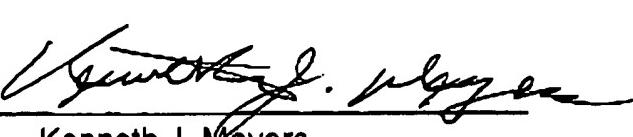
If there is any fee due in connection with the filing of this request, please charge the fee to our deposit account No. 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,  
GARRETT & DUNNER, L.L.P.

Dated: May 24, 2002

By:



Kenneth J. Meyers

Reg. No. 25,146

Phone: (202) 408-4033

Fax: (202) 408-4400

Email: [Ken.Meyers@finnegan.com](mailto:Ken.Meyers@finnegan.com)

FINNEGAN  
HENDERSON  
FARABOW  
GARRETT &  
DUNNER LLP

1300 I Street, NW  
Washington, DC 20005  
202.408.4000  
Fax 202.408.4400  
[www.finnegan.com](http://www.finnegan.com)